

**Amendments to the Specification:**

Please replace paragraph 09 with the following amended paragraph:

Fig. 1 is a simplified block diagram of a prior art MIMO TCM encoder 10. TCM encoder 10 includes a serial-to-parallel converter 12, a convolutional encoder 14, a symbol mapper 16 and a serial-to-parallel converter 18. The MIMO system (not shown) of which MIMO TCM encoder 10 is a part, includes  $M_t$  transmit antennas and  $M_r$  receive antennas (not shown). The channel through which the data encoded by TCM encoder 10 is transmitted is characterized by the complex matrix  $\mathbf{H}$  having the dimensions of  $[[M_t \times M_r]] \underline{M_r} \times \underline{M_t}$ . The channel is assumed to be an AWGN channel. Convolutional encoder 14 in conjunction with symbol mapper 16 performs the TCM encoding.

Please replace paragraph 27 with the following amended paragraph:

Fig. 3 is a simplified block diagram of a MIMO TCM encoder 100, in accordance with one embodiment of the present invention. MIMO TCM encoder 100 includes, in part, a serial-to-parallel converter 102, a convolutional encoder 104, a symbol mapper 106, a serial-to-parallel converter 108, and a coordinate swapper 110. Data supplied by coordinate swapper 110 is transmitted by at least two transmit antennas (not shown) and received by  $M_r$  receive antennas (not shown). The channel through which the data encoded by TCM encoder 100 is transmitted is characterized by the complex matrix  $\mathbf{H}$  having the dimensions of  $[[M_t \times M_r]] \underline{M_r} \times \underline{M_t}$ . In the following description of MIMO TCM encoder 100, it is assumed that  $M_t$  is equal to two. It is understood, however, that the present invention applies to MIMO TCM encoders having more than two transmit antennas.